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### Four hundred and sixth meeting.

November 8, 1854. — Quarterly Meeting.

The President in the chair.

Hon. B. R. Curtis, Hon. Rufus Choate, and Rev. Ephraim Peabody were elected Fellows of the Academy in the Section of Philosophy and Jurisprudence.

Dr. Charles E. Ware was elected a Fellow of the Academy in the Section of Medicine and Surgery.

Dr. Thomas M. Brewer and Dr. Silas Durkee were elected Fellows of the Academy in the Section of Zoölogy and Physiology.

Dr. B. A. Gould communicated elements of the fourth comet of 1854, determined from observations at Berlin and Cloverden; — together with the results of some further computations instituted in consequence of the striking resemblance between these elements and those of the first comet of 1845. These results are given in detail in the Astronomical Journal.

Dr. Hayes alluded to the opinion which has been held by some, that after seasons of drought springs flow more freely before rain falls. His attention had been recently called to the subject by hearing, on reliable authority, that in California this phenomenon is observed some weeks before the annual rains. He inquired if any gentleman present could explain it.

Professor Lovering said that in a paper read before the American Association for the Advancement of Science, during the session at Cleveland, this phenomenon had been attributed to variations in atmospheric pressure, such as produce changes in the barometer; and he regarded the explanation as a very rational one.

Dr. Jeffries Wyman stated that he had been engaged in making some experiments with a view to ascertain, if possible, the cause of contractility in some vegetable tissues, as in the capsules of the common Balsam and the *Echinocystis lobata*. In these it is well known that, when the seeds are ripe, the seed-vessel bursts open, scattering them to a considerable distance.

It was Dutrochet's theory, that this action is due to the sudden transfer of fluid from the inner to the outer cells of the wall of the capsule. Dr. Wyman had demonstrated the impossibility of this, by dissecting away the outer layers of cells without impairing at all the contractility of the capsule. He had himself come to the conclusion, that the motion is due to the spontaneous contraction of the cells on the contracting side, in the way that motion is produced in the hydroid polyps. In the contracted capsule the cells on the concave side are found to be shortened, while those on the opposite side are elongated. In the Balsam capsule the contraction is so sudden that the shortening of the cells cannot be watched, but in the Echinocystis the motion is so gradual that the change can be observed under the microscope. When gradually subjected to the action of anæsthetic agents, the capsules lose their contractility; but when suddenly placed under their influence, an immediate contraction is the usual result.

### Four hundred and seventh meeting.

December 12, 1854. — QUARTERLY MEETING.

The PRESIDENT in the chair.

Dr. Durkee read a paper on the Common Mosquito, *Culex pipiens*, giving a description of the microscopic structure of its proboscis, with an account of its development and habits of reproduction.

On motion of the Treasurer, the following vote was passed: —

"Whereas, the American Academy of Arts and Sciences has received notice from the executors of the will of the late Samuel Appleton, that they have transferred to this society stocks amounting to ten thousand dollars, from the fund left for distribution by Mr. Appleton, —

"*Voted*, That the Academy accepts with much gratification this contribution to the cause of Science from one who found his happiness in acts of beneficence, and that our thanks are due to the executors of his will for the direction which they have given to his bounty."